

# How to write a class and how to create Objects

## Example:

Following the example of the **Circle** class in Section 8.2, design a class named **Triangle** to represent a triangle. The class contains:

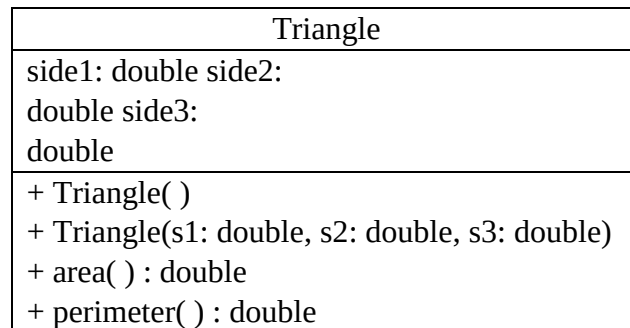
- Three **double** data fields named **side1**, **side2**, and **side3** that specify the three sides of the triangle. ■
- A no-arg constructor that creates a default triangle. Use the value 1 for each of three sides.
- A constructor that creates a triangle with the specified **side1**, **side2**, and **side3**.
- A method named **area( )** that returns the area of this triangle.
- A method named **perimeter( )** that returns the perimeter of this triangle.

Note that the perimeter is the sum of the three sides and the area is calculated using the below formula:

$$s = (side1 + side2 + side3)/2;$$

$$area = \sqrt{s(s - side1)(s - side2)(s - side3)}$$

1. Draw the UML diagram for the class **Triangle**.



**UML class diagram of the class Triangle**

2. Implement (Write the code for) the class **Triangle**.
3. Write an application (also known as a test program) that creates two **Triangle** objects - one using the noarg constructor and the other with side1 **4**, side2 **5**, and side3 **6**. Display the area and perimeter of each triangle.